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EARTH RETAINING SYSTEMS (ERS)
ENCROACHMENT PERMIT PROCEDURES

Definitions.

Earth Retaining Systems are defined in Highway Design Manual (HDM) Topic 210 – Reinforced Slopes and Earth Retaining Systems.

Submittals.

Summarized below are references applicable to encroachment permit submittals. Structural submittals shall conform to the Caltrans Standard Plans, Bridge Design Specifications and Standard Specifications. Refer also to the Highway Design Manual and Encroachment Permits Manual.

References.

1. Standard Plans. (May, 2006) (http:// caltrans-opac.ca.gov/publicat.htm)

A62B, Limits of payment for Excavation and Backfill Bridge surcharge and wall
A62C, Limits of payment for Excavation and Backfill Bridge
C7A, Reinforced Concrete Crib Wall Battered wall – Types A, B & C
C7B, Reinforced Concrete Crib Wall Battered wall – Types D, E & F
C7C, Reinforced Concrete Crib Wall Vertical wall – Types A, B & C
C7D, Reinforced Concrete Crib Wall Vertical wall – Types D, E & F
C7E, Reinforced Concrete Crib Wall Vertical wall – Types A, B, C, D, E & F Header & Strecher Details
C7F, Design Data for Reinforced Concrete Crib wall Foundation Pressure – Battered wall
C7G, Design Data for Reinforced Concrete Crib wall Foundation Pressure – Vertical wall
C8A, Steel Crib Wall Construction Details
C8B, Steel Crib Wall Design Data
C8C, Steel Crib Wall Design Data
C9A, Timber Crib wall – Types A, B, C, & D
C9B, Timber Crib wall – Types A, B, C, & D Design Data
B3-1, Retaining Wall Type 1 (H=4 through 30 ft)
B3-2, Retaining Wall Type 1 (H=32 through 36 ft)
B3-3, Retaining Wall Type 1A
B3-4, Retaining Wall Type 2
B3-5, Retaining Wall Type 3
B3-6, Retaining Wall Type 4
B3-7, Retaining Wall Type 5
B3-8, Retaining Wall Type Details No.1
B3-9, Retaining Wall Type Details No.2
B3-11, Retaining Wall Type 6 (H= 6 ft Maximum)

2. XS-Sheets. (http:// www.dot.ca.gov/hq/esc/structures-cadd/ XS-sheets/)

Section 12: XS 12-010-1, -2, -3, -4, -5
Section 13: XS 13-010-1, -2, -3, -4, -5, -6, -7, -8
Section 14: XS 14-010, -210, -220, -310.1, -320.1, -320.2, -340, -350, -360.1, -360.2, -370.1, -370.2, -380.1, -380.2, -390.1, -390.2, -400.1, -400.2, -410.1, -410.2

3. Standard Specifications. (July, 1999)

Section 19, Earthwork
Section 49, Piling
Section 50, Prestressing Concrete
Section 51, Concrete Structures
Section 52, Reinforcement
Section 53, Shotcrete
Section 55, Steel Structures
Section 57, Timber Structures
Section 58, Preservative Treatment of Lumber, Timber and Piling
Section 90, Portland Cement Concrete
Section 95, Epoxy

4. Special Standard Specifications. (http://www.dot.ca.gov/hq/esc/oe/specifications/std-specs/1999-stdSpecs/)

19-600 : Earth Retaining Structures
19-600a(19LIST): Proprietary Earth Retaining Systems
19-650(19WALL): Soil Nail Wall Earthwork
19-660(19NAIL): Soil NAIL Assembly
49-330(49CISS): Cast-in-Steel-Shell Concrete Piling
49-350(49PIPE): Steel Pipe Piling
49-370(49PSOL): Steel Soldier Piling
49-380(49SHET): Steel Sheet Piling
49-390(49MICR): Micropiling
50-560(50TIEB): Tieback Anchors
50-570(50TIED): Tiedown Anchors

5. Manuals. (http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm/)

- Bridge Design Specifications **(BDS)**, LFD Version, April 2000.
  Section 3, LOADS
  Section 5, RETAINING WALLS (August, 2004)
  Section 8, REINFORCED CONCRETE

- Bridge Memo To Designers **(MTD)**, Volume 1.
  Section 5: Memos 5-7, 5-8, 5-12, 5-14, 5-16, 5-17, 5 -18

- Bridge Design Aids **(BDA)**.
  Section 3, RETAINING WALLS

- Bridge Design Details **(BDD)**
  Section 6: 6-60, 6-61, 6-62, 6-71

- Highway Design Manual **(HDM)**, Sixth Edition.
  Chapter 200, Geom. Design Standards
  Topic 210, Reinforced Slopes and Earth Retaining Systems

- Encroachment Permits Manual **(EPM)**, 7th Edition.
  Chapter 500, Specific Encroachment Permits.
  Section 508.9, Structures
  Section 518, Tunnel Under Road